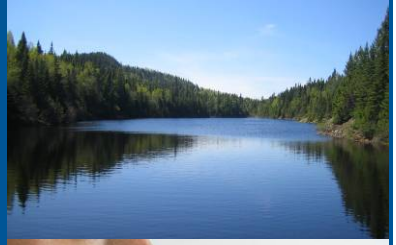







Real-Time Water Quality Deployment Report

Lower Churchill River Network

May 21 to July 4, 2025

Newfoundland Labrador

Government of Newfoundland & Labrador
Department of Environment and Climate Change
Water Resources Management Division

Contents

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Department of Environment and Climate Change
Water Resources Management Division

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Real Time Water Quality Monitoring

- Staff with the Department of Environment and Climate Change monitor real-time water quality data on a regular basis.
- This deployment report discusses water quality related events occurring at two stations on the Lower Churchill River: Churchill River below Muskrat Falls and Churchill River at English Point.
- Real-time water quality monitoring instruments were deployed at Churchill River below Muskrat Falls and Churchill River at English Point on May 21st. They were removed on July 4th for a deployment of 43 days each.
- An instrument was not deployed at Churchill River above Grizzle Rapids due to the presence of an ice wall, which prohibited access to that site.
- An instrument was not deployed at Churchill River below Metchin River due to the unavailability of a helicopter to access this site.

Quality Assurance and Quality Control

- As part of the Quality Assurance and Quality Control protocol (QA/QC), an assessment of the reliability of data recorded by an instrument is made at the beginning and end of the deployment period. This procedure is based on the approach used by the United States Geological Survey.
- At deployment and removal, a QA/QC instrument is temporarily deployed adjacent to the field instrument. Values for temperature, pH, conductivity, dissolved oxygen and turbidity are compared between the two instruments**.** Based on the degree of difference between parameters recorded by the field instrument and QA/QC instrument at deployment and at removal, a qualitative statement is made on the data quality (Table 1).

Table 1: Instrument Performance Ranking classifications for deployment and removal

	Rank				
Parameter	**Excellent**	**Good**	**Fair**	**Marginal**	**Poor**
Temperature (C)	<=+/-0.2	>+/-0.2 to 0.5	>+/-0.5 to 0.8	>+/-0.8 to 1	<+/-1
pH (unit)	<=+/-0.2	>+/-0.2 to 0.5	>+/-0.5 to 0.8	>+/-0.8 to 1	>+/-1
Sp. Conductance (µS/cm)	<=+/-3	>+/-3 to 10	>+/-10 to 15	>+/-15 to 20	>+/-20
Sp. Conductance > 35µS/cm (%)	<=+/-3	>+/-3 to 10	>+/-10 to 15	>+/-15 to 20	>+/-20
Dissolved Oxygen (mg/l) (% Sat)	<=+/-0.3	>+/-0.3 to 0.5	>+/-0.5 to 0.8	>+/-0.8 to 1	>+/-1
Turbidity <40 NTU (NTU)	<=+/-2	>+/-2 to 5	>+/-5 to 8	>+/-8 to 10	>+/-10
Turbidity > 40 NTU (%)	<=+/-5	>+/-5 to 10	>+/-10 to 15	>+/-15 to 20	>+/-20

- It should be noted that the temperature sensor on any instrument is the most important. All other parameters can be broken down into three groups: temperature dependent, temperature compensated and temperature independent. Because the temperature sensor is not isolated from the rest of the instrument, the entire instrument must be at the same temperature before the sensor will stabilize. The values may take some time to climb to the appropriate reading; if a reading is taken too soon it may not accurately portray the water body.

- Deployment and removal comparison rankings for the Lower Churchill River stations deployed from May 21 to July 4, 2025 are summarized in Table 2.

Table 2: Comparison rankings for Lower Churchill River stations May 21 to July 4, 2025

Churchill River Station	Date	Action	Comparison Ranking				
			Temperature	pH	Conductivity	Dissolved Oxygen	Turbidity
Below Metchin River	N/A	Deployment	N/A	N/A	N/A	N/A	N/A
	N/A	Removal	N/A	N/A	N/A	N/A	N/A
Above Grizzle Rapids	N/A	Deployment	N/A	N/A	N/A	N/A	N/A
	N/A	Removal	N/A	N/A	N/A	N/A	N/A
Below Muskrat Falls	May 21, 2025	Deployment	Excellent	Fair	Excellent	Excellent	Good
	July 4, 2025	Removal*	Marginal	Excellent	Marginal	Poor	Good
At English Point	May 21, 2025	Deployment	Good	Excellent	Excellent	Excellent	Good
	July 4, 2025	Removal	Good	Excellent	Excellent	Excellent	Excellent

- **Churchill River below Metchin River**
    - An instrument could not be deployed at this station due to a lack of site access.
- **Churchill River above Grizzle Rapids**
    - An instrument could not be deployed at this station due to unfavourable site conditions.
- **Churchill River below Muskrat Falls**
    - At deployment, all parameters ranked as either ‘excellent’ or ‘good’ with the exception of pH which ranked ‘fair’.
    - *At removal, all parameter rankings ranged from ‘poor’ to ‘excellent’ as the instrument was no longer in the water.
- **Churchill River at English Point**
    - At deployment, all parameters ranked as either ‘excellent’ or ‘good’.
    - At removal, all parameters ranked as either ‘excellent’ or ‘good’.

Data Interpretation

- The following graphs and discussion illustrate water quality related events occurring from May 21 to July 4, 2025 on the Lower Churchill River Network.
- With the exception of water quantity data (stage & flow), all data used in the preparation of the graphs and subsequent discussion below adhere to stringent QA/QC protocol. Water Survey of Canada is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

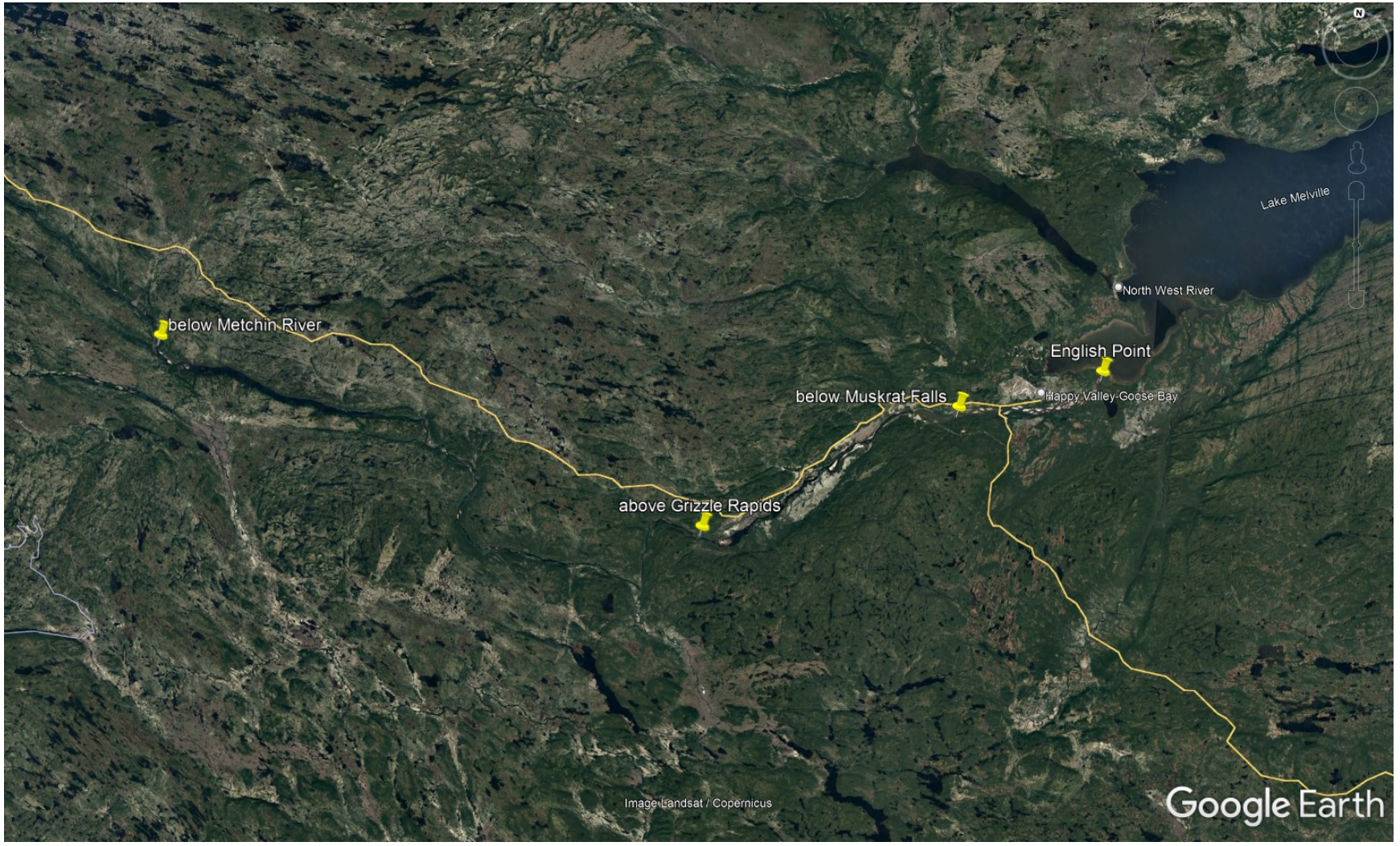

Figure 1: Lower Churchill Network of Real-Time Water Quality Stations

Churchill River below Muskrat Falls

Water Temperature

- Over the deployment period, water temperature ranged from 0.9°C to 26.2°C, with a median value of 7.7°C (Figure 2). Air temperature data was obtained from the Muskrat Falls Weather Station. It should be noted that the sonde was out of the water for periods of time during deployment which may impact the data.
- Water temperature steadily increased over the course of the deployment period. This is to be expected as ambient air temperatures also increased over the same period. Water temperatures closely correlate with ambient air temperatures. The period from June 14-21 and June 29-July 4 where water temperatures equal air temperature corresponds to low stage levels, indicating the instrument was likely out of the water.
- Water Survey of Canada (Environment and Climate Change Canada) is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

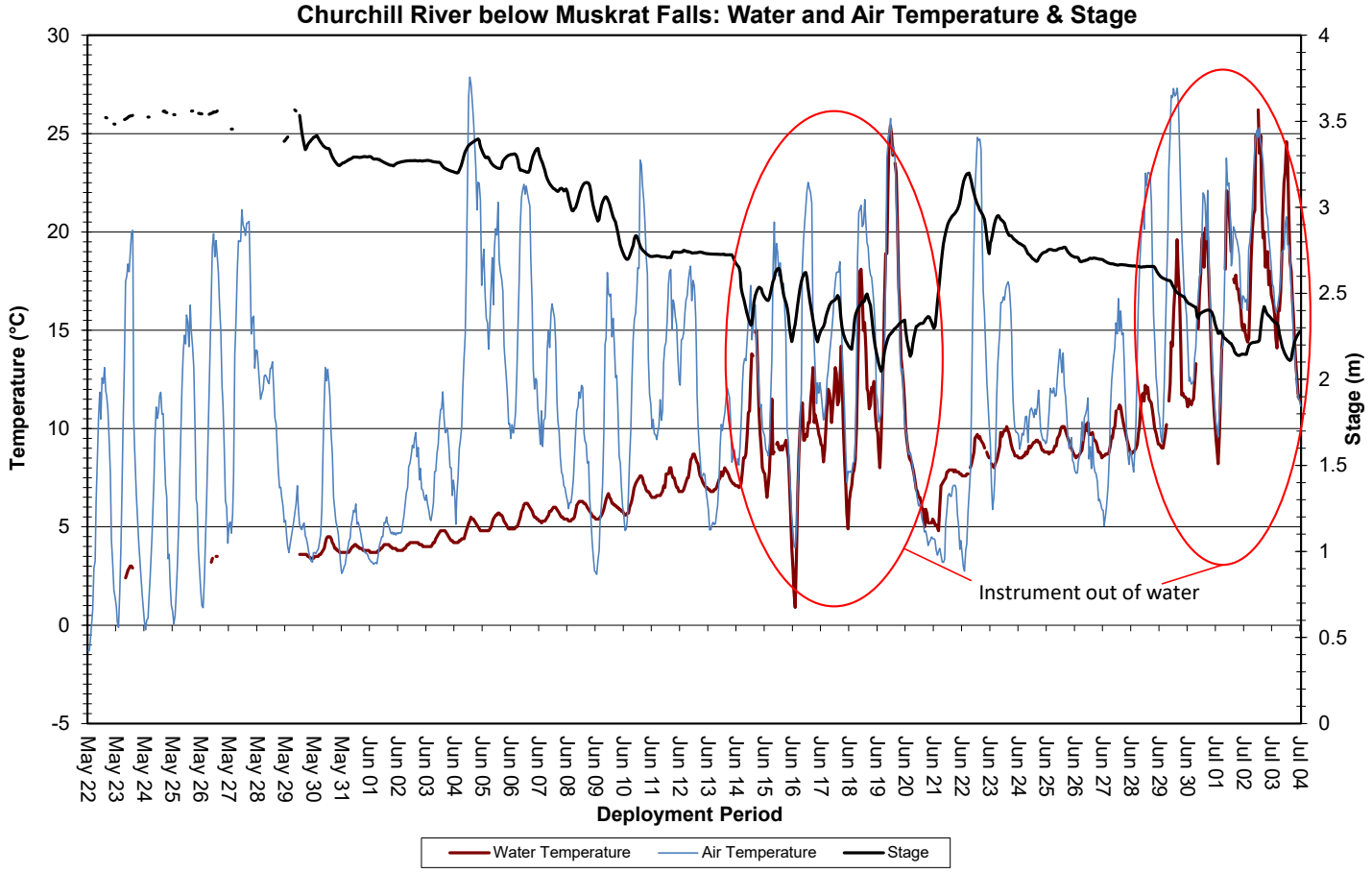

Figure 2: Water and Air Temperature & Stage at Churchill River below Muskrat Falls

pH

- Over the deployment period, pH ranged from 0 pH units to 14 pH units as the sensor experienced time out of the water. The median value was 6.48 pH units (Figure 3).
- pH values were quite stable over the course of deployment when the instrument was in the water, hovering around CCME's Minimum Guideline for the Protection of Aquatic Life (Figure 3). Instances where pH levels fell below the CCME's Minimum Guideline or spiked above the maximum guideline are attributable to the instrument being at the edge or completely out of the water.
- Water Survey of Canada (Environment and Climate Change Canada) is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

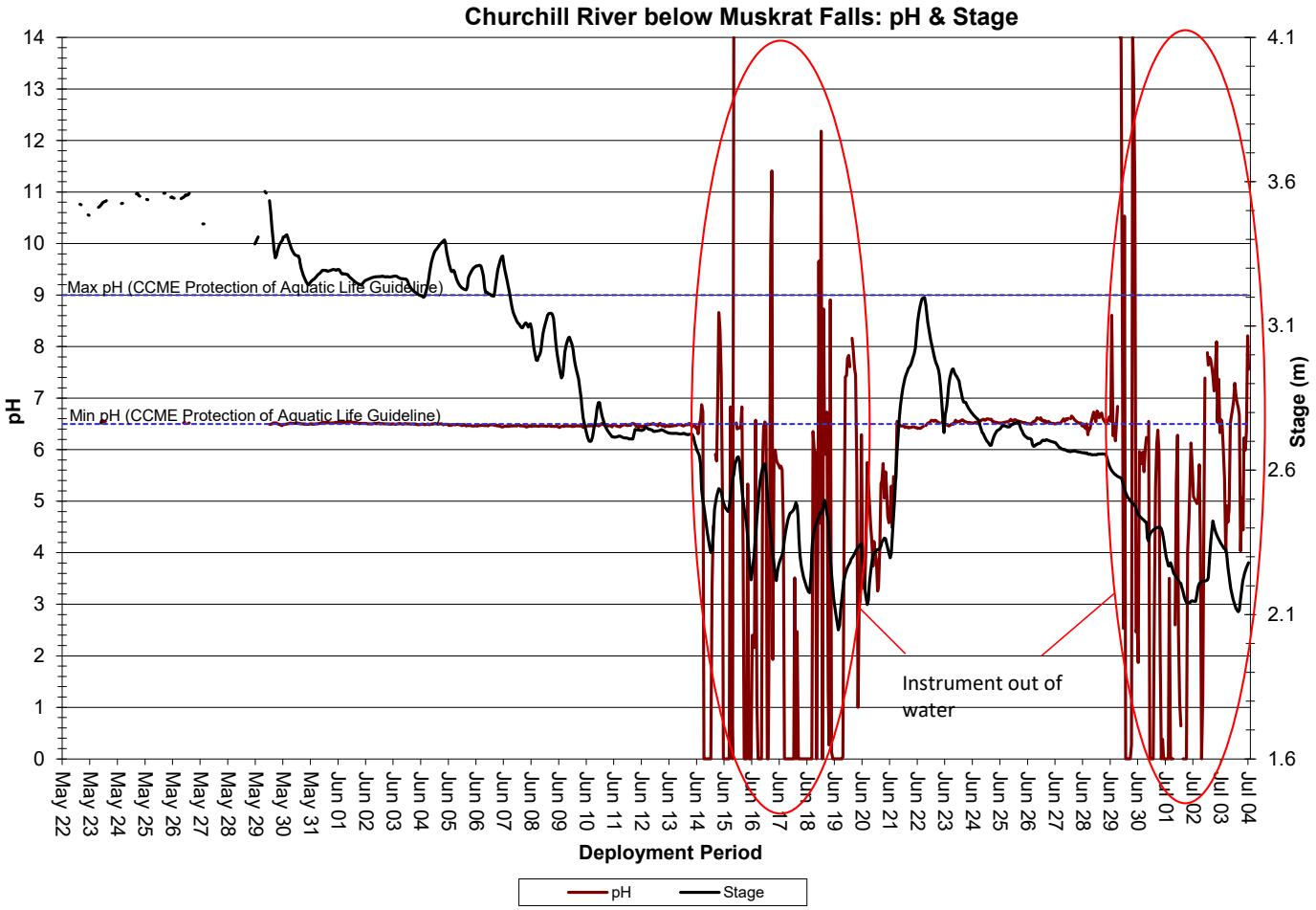

Figure 3: pH & Stage at Churchill River below Muskrat Falls

Specific Conductivity

- Over the deployment period, specific conductivity ranged from 0µS/cm to 16.8µS/cm, with a median value of 14.8µS/cm (Figure 4).
- The relationship between conductivity and stage is generally inversed. When stage decreases, specific conductivity increases as the decreased amount of water in the river system concentrates solids that are present, and vice versa. This relationship is only somewhat evident in the graph below, likely because this station is located at a deep and wide section of the Churchill River and other factors in the water column influence conductivity levels (Figure 4). Instances where specific conductivity dropped to or near 0µS/cm are likely attributable to the instrument being at the edge, or completely out, of the water.
- Water Survey of Canada (Environment and Climate Change Canada) is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

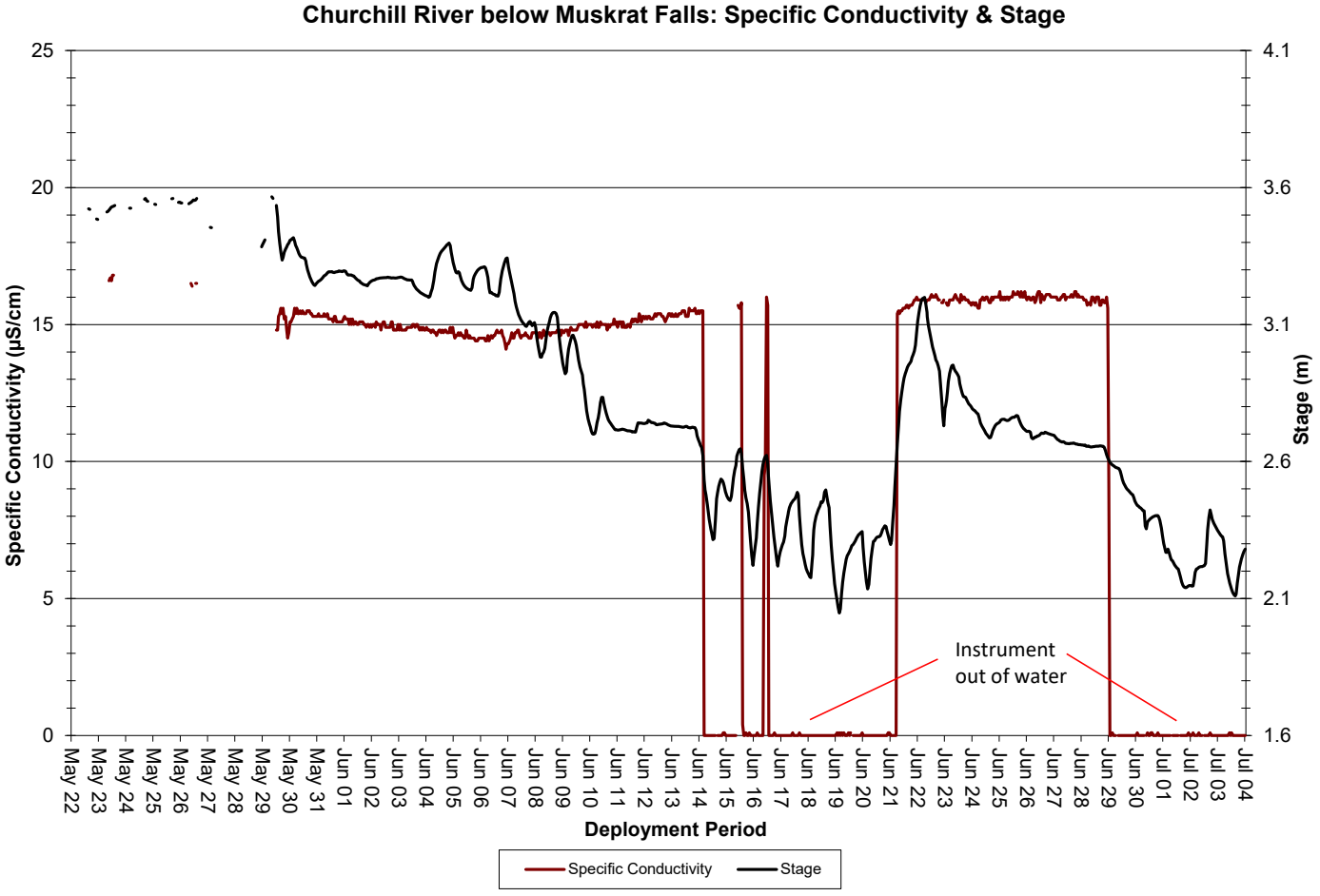

Figure 4: Specific Conductivity & Stage at Churchill River below Muskrat Falls

Dissolved Oxygen

- Over the deployment period, dissolved oxygen concentration ranged from 0.02mg/L to 13.51mg/L, with a median value of 11.49mg/L. Saturation of dissolved oxygen ranged from 0.1% to 265%, again indicating the instrument was out of the water. The median value was 96.95% (Figure 5).
- Dissolved oxygen and water temperature exhibit an inverse relationship: as one parameter increases, the other decreases, and vice versa. Dissolved oxygen levels slowly decreased over the course of deployment. This is to be expected since water temperatures were slowly increasing over the same period. Dissolved oxygen also follows a diurnal pattern as water temperatures rise and fall under the influence of ambient air temperatures.
- The period of high fluctuations in dissolved oxygen levels from June 14-21 and June 29-July 4 indicates the instrument was out of the water (Figure 5).
- Dissolved oxygen levels were above the CCME's Guideline for the Protection of Early Life Stages for most of the deployment period, and above the CCME's Guideline for the Protection of Other Life Stages for the duration of deployment.

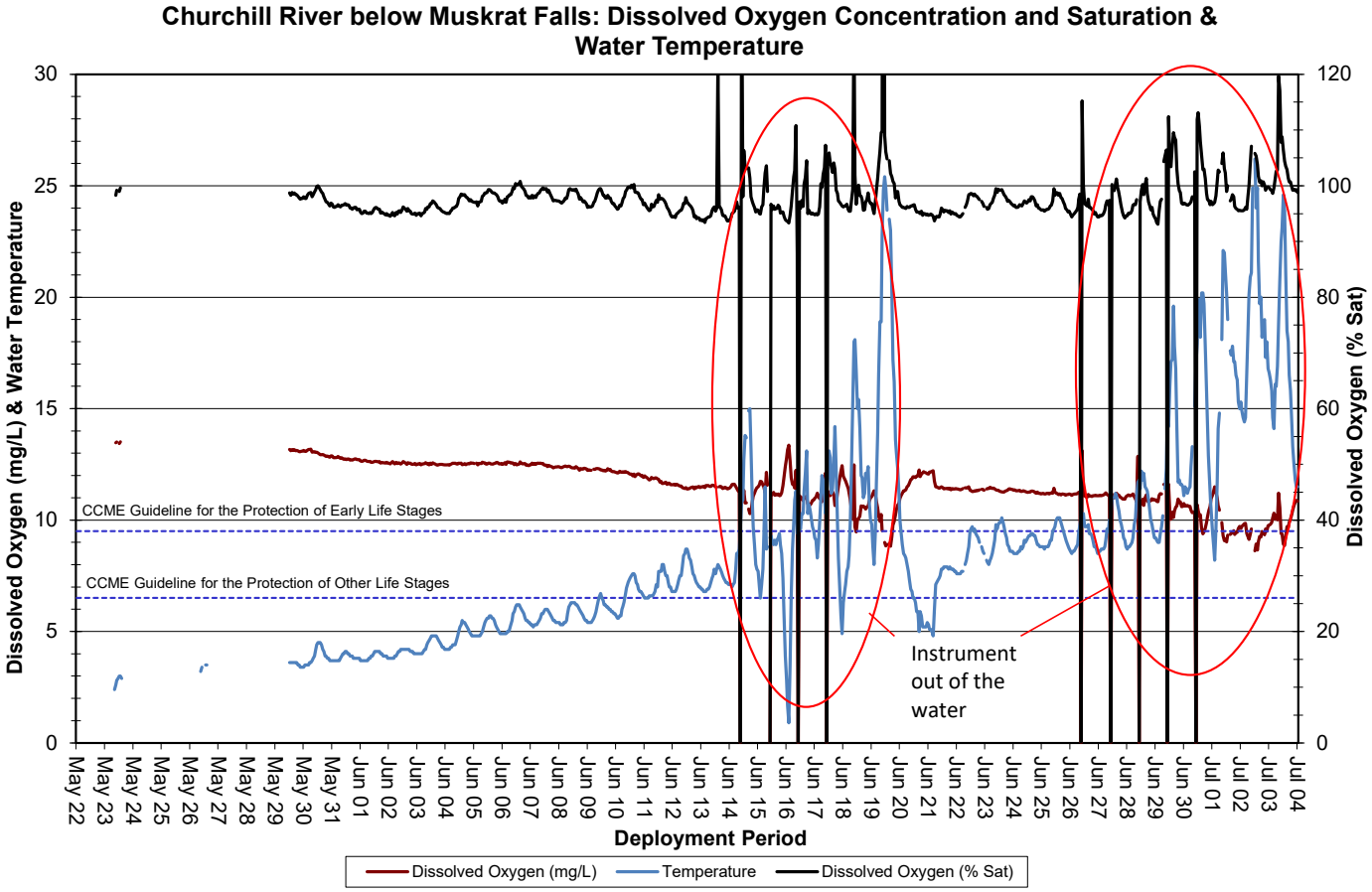

Figure 5: Dissolved Oxygen & Water Temperature at Churchill River below Muskrat Falls

Turbidity

- Over the deployment period, turbidity ranged from 0 NTU to 312.9 NTU, with a median value of 0.1 NTU. A median value of 0.1 NTU indicates a very low level of natural background turbidity in the waterbody. Precipitation data was obtained from the Muskrat Falls Weather Station.
- There was some correlation between turbidity events and precipitation events across the deployment period (Figure 6). Periods of very high and very low turbidity occur when the instrument was out of the water.
- Water Survey of Canada (Environment and Climate Change Canada) is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

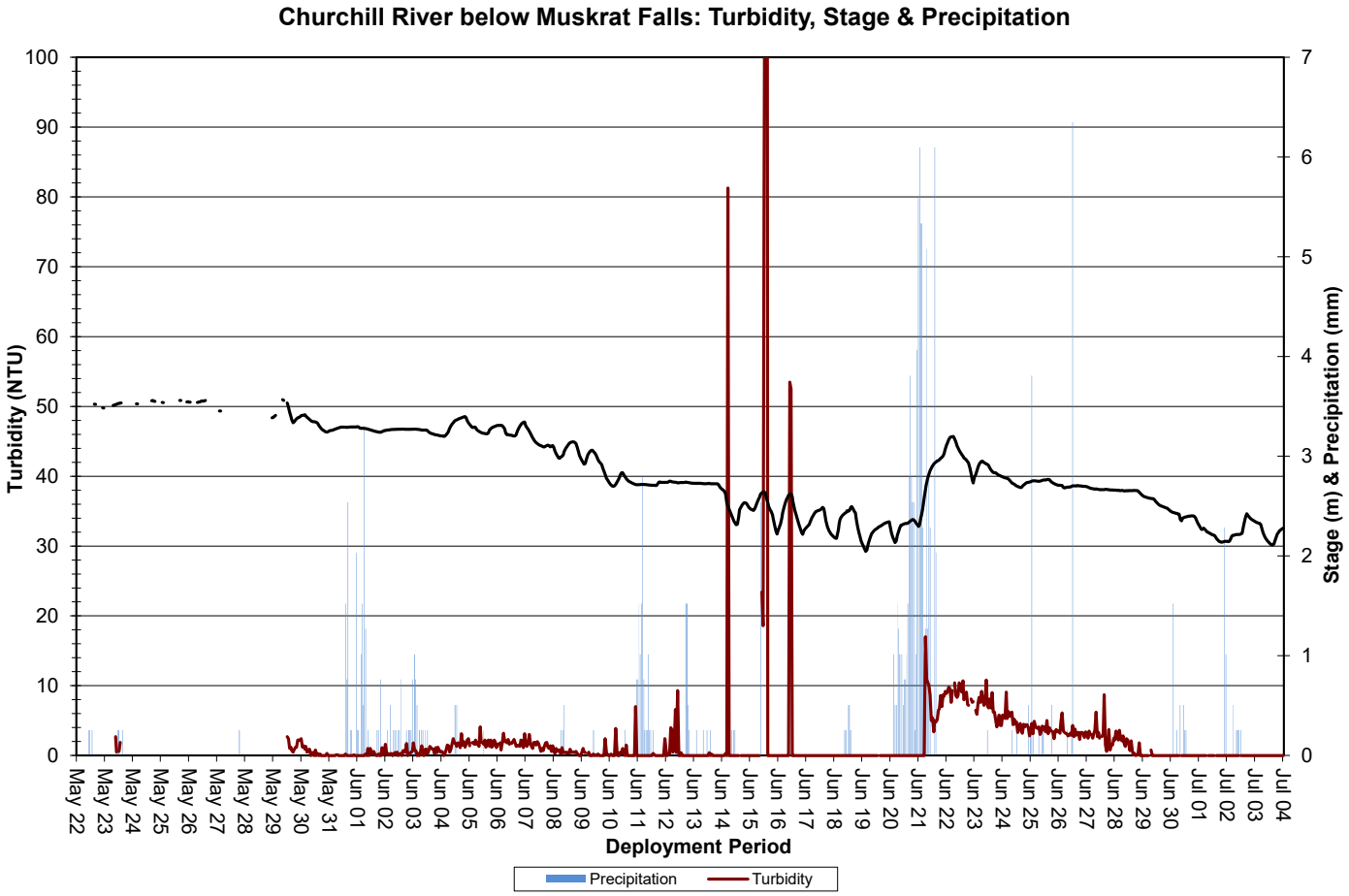

Figure 6: Turbidity, Precipitation & Stage at Churchill River below Muskrat Falls

Stage & Flow

- Over the deployment period, stage ranged from 2.047m to 3.566m, with a median value of 2.734m. Flow ranged from 1215.701m^3/s to 2771.314m^3/s, with a median value of 1908.965m^3/s (Figure 7). Precipitation data was obtained from the Muskrat Falls Weather Station.
- Stage and flow were variable over the course of deployment and correlated somewhat with precipitation events. This is partly related to the fact that this station is located on a very wide section of the Churchill River and therefore not as easily influenced by smaller precipitation events. Stage and flow at this station are also influenced by upstream activities at the Muskrat Falls hydroelectric project.
- Water Survey of Canada (Environment and Climate Change Canada) is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

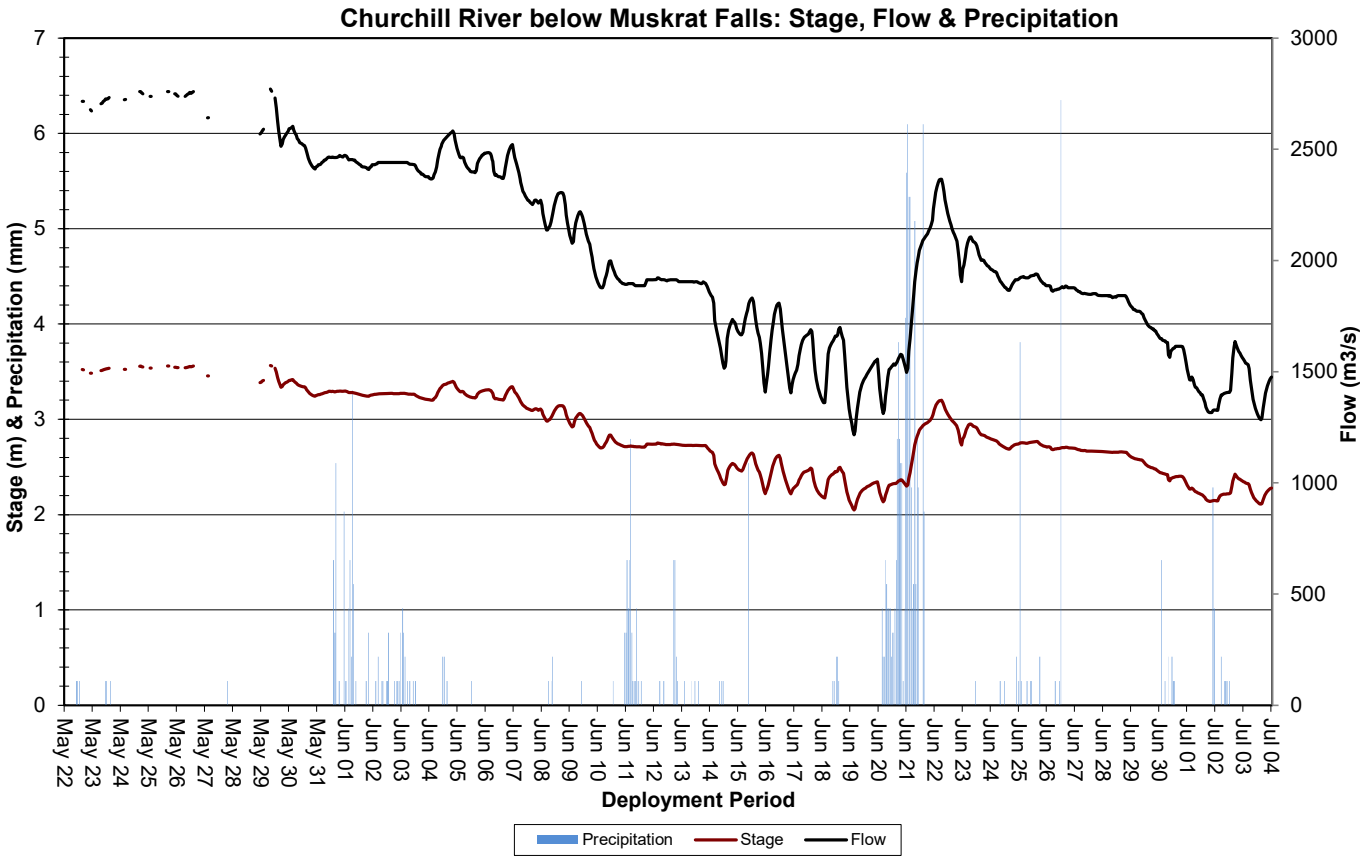

Figure 7: Stage, Flow & Precipitation at Churchill River below Muskrat Falls

Churchill River at English Point

Water Temperature

- Water temperature ranged from 1.9°C to 17.9°C, with a median value of 8.7°C (Figure 8). Air temperature data was obtained from the Muskrat Falls MET Road Weather Station.
- Water temperature increased steadily across the deployment period. Water temperatures closely correlated with ambient air temperatures, which followed a similar trend across the same period.
- Water Survey of Canada (Environment and Climate Change Canada) is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

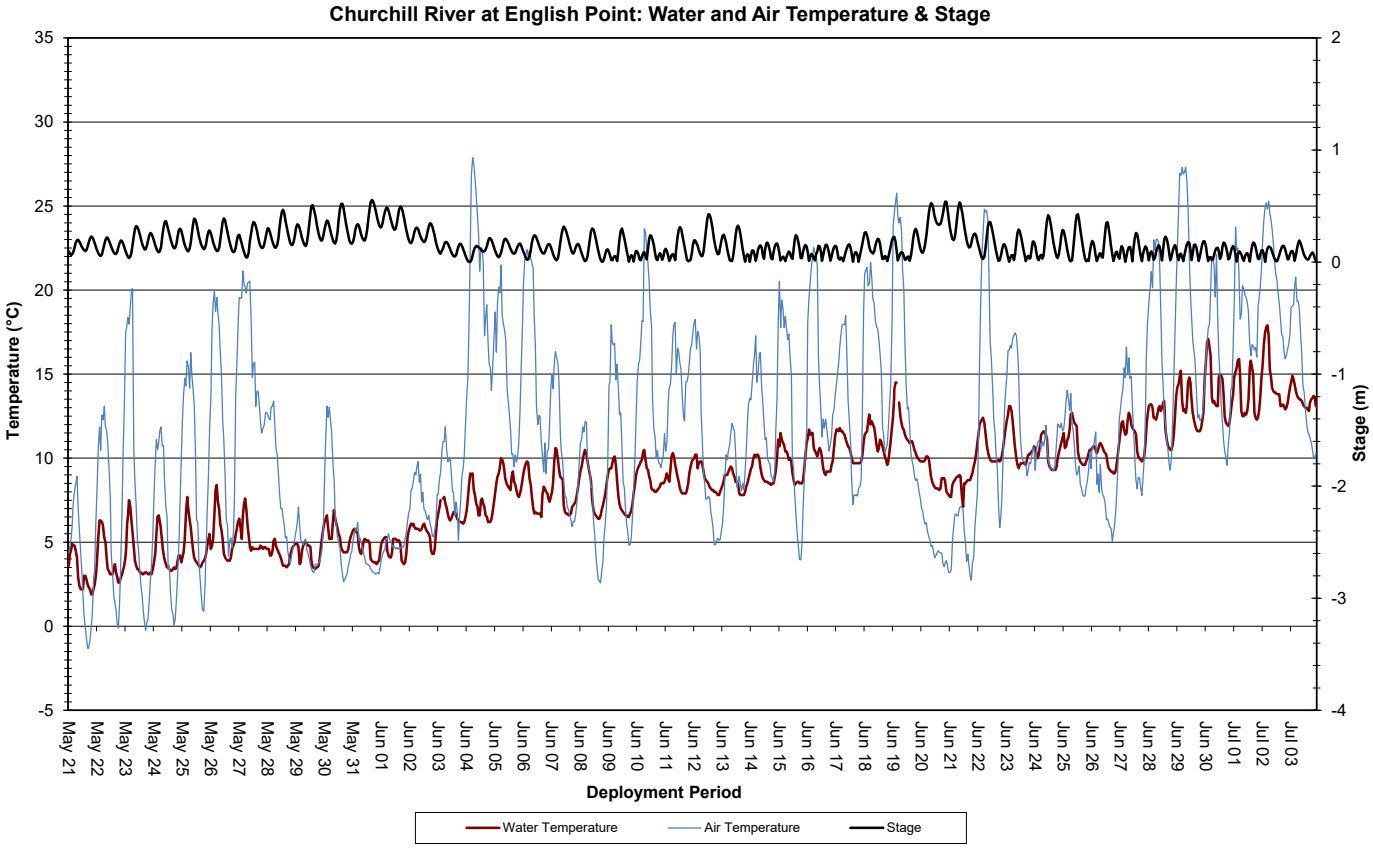

Figure 8: Water and Air Temperature & Stage at Churchill River at English Point

pH

- Over the deployment period, pH ranged from 6.29 pH units to 6.86 pH units, with a median value of 6.49 (Figure 9).
- pH values were consistent across the deployment period and hovered around the CCME Minimum Guideline for the Protection of Aquatic Life for the duration of deployment.
- Water Survey of Canada (Environment and Climate Change Canada) is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

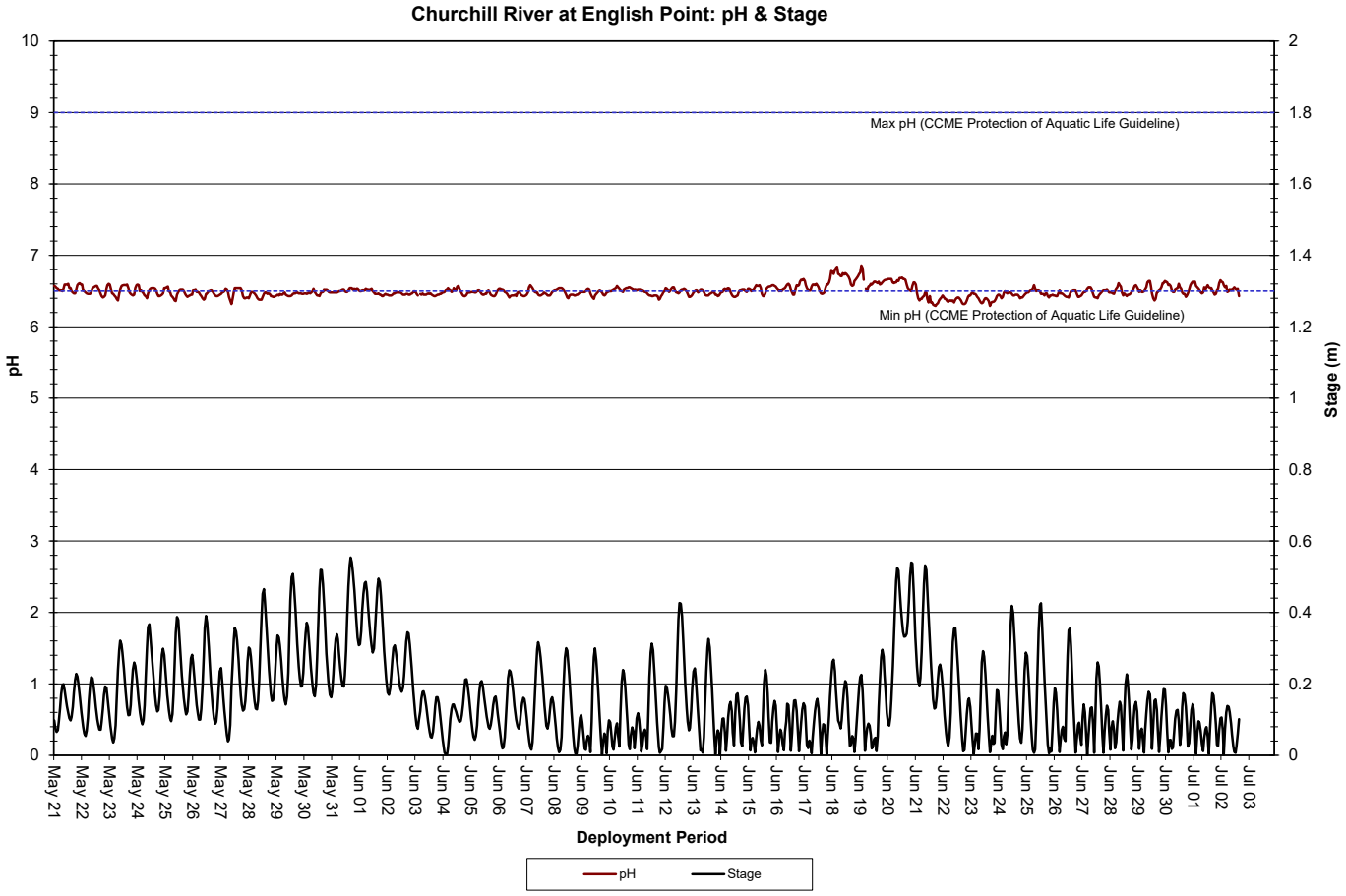

Figure 9: pH & Stage at Churchill River at English Point

Specific Conductivity

- Over the deployment period, specific conductivity ranged from 15.63µS/cm to 48.66µs/cm, with a median value of 29µS/cm (Figure 10).
- Specific conductivity fluctuates considerably at this location due to the tidal influences of the Atlantic Ocean on Lake Melville. As the tide comes in, specific conductivity increases as dissolved solids and salinity increase, and vice versa as the tide goes out. This increase and decrease in specific conductivity and stage occurs twice daily. This pattern is generally consistent throughout the deployment period (Figure 10).
- Water Survey of Canada (Environment and Climate Change Canada) is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

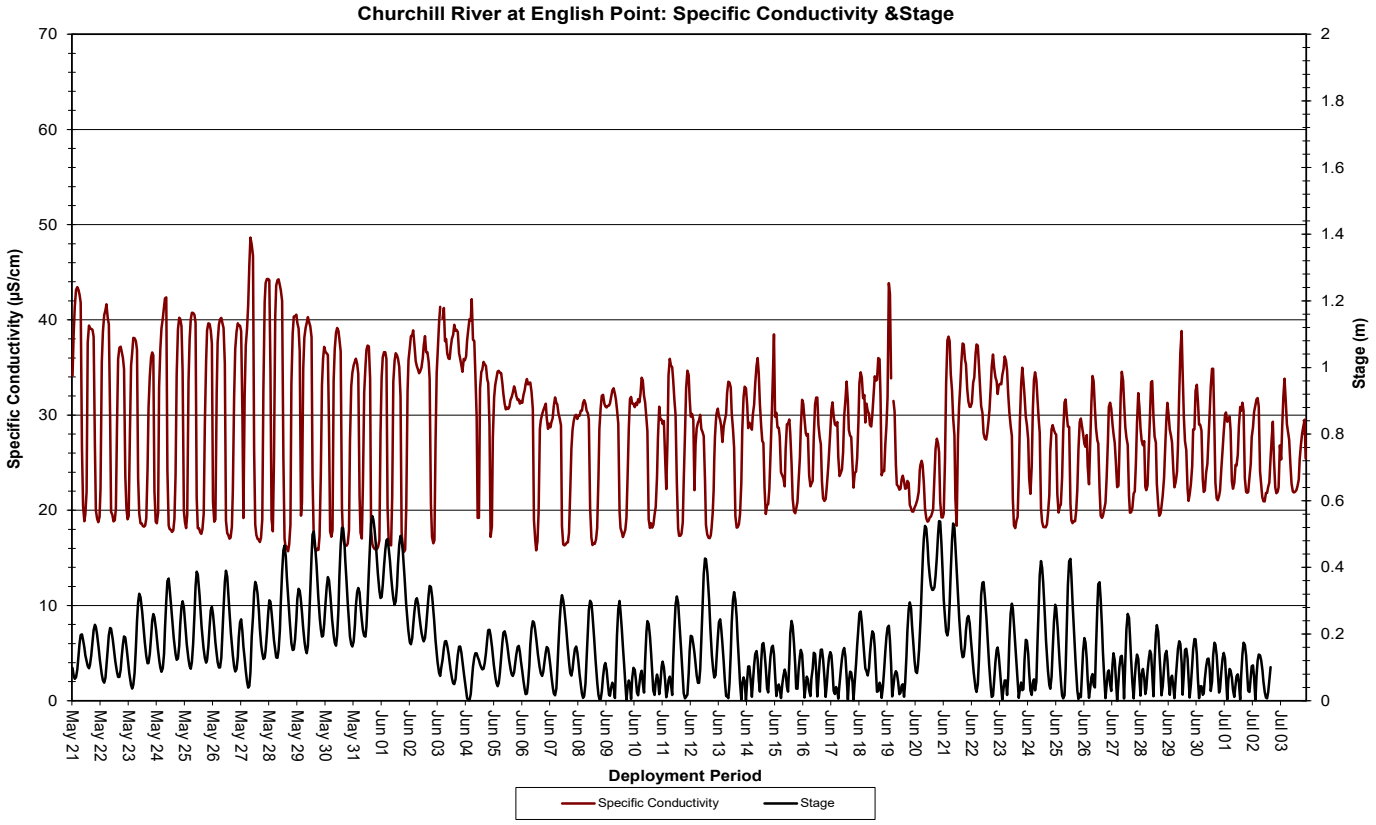

Figure 10: Specific Conductivity & Stage at Churchill River at English Point

Dissolved Oxygen

- Over the deployment period, dissolved oxygen concentration ranged from 9.84mg/L to 14.02mg/L, with a median value of 11.57mg/L. Saturation of dissolved oxygen ranged from 84.2% to 108.5% saturation, with a median value of 88.6% (Figure 11).
- There is an evident relationship between water temperature and dissolved oxygen. As water temperatures increased over the deployment period, dissolved oxygen levels decreased. Dissolved oxygen levels also follow a diurnal pattern as water temperatures rise and fall under the influence of ambient air temperatures. Generally, dissolved oxygen levels are higher in a waterbody during cooler temperatures.
- Dissolved oxygen levels remained above CCME's Guidelines for the Protection of Aquatic Early and Other Life Stages for the duration of deployment (Figure 11).

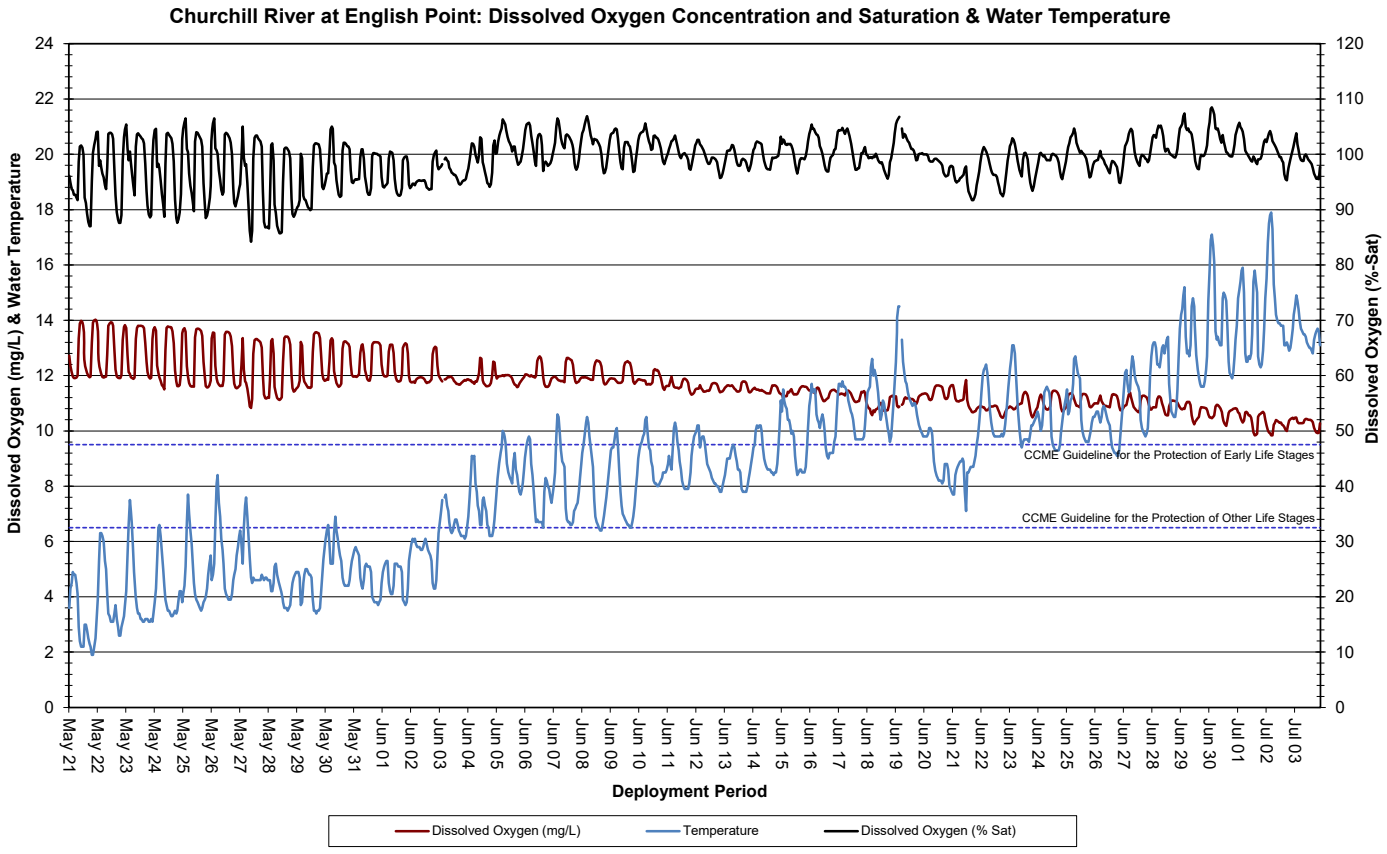

Figure 11: Dissolved Oxygen & Water Temperature at Churchill River at English Point

Turbidity

- Over the deployment period, turbidity ranged from 4.9 NTU to 288.6 NTU, with a median value of 10.3 NTU (Figure 12). A median value of 10.3 NTU indicates a high level of background turbidity; this is likely due to disturbance of the riverbed by the tidal influences present at this station. Precipitation data was obtained from the Muskrat Falls Weather Station.
- Turbidity events generally correlate with precipitation events, as these can increase the presence of suspended material in water. High winds and tidal influences can also contribute to turbidity events at this station by disturbing sediment from the riverbed (Figure 12). Wind speed data was obtained from the Muskrat Falls Weather Station
- Water Survey of Canada (Environment and Climate Change Canada) is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

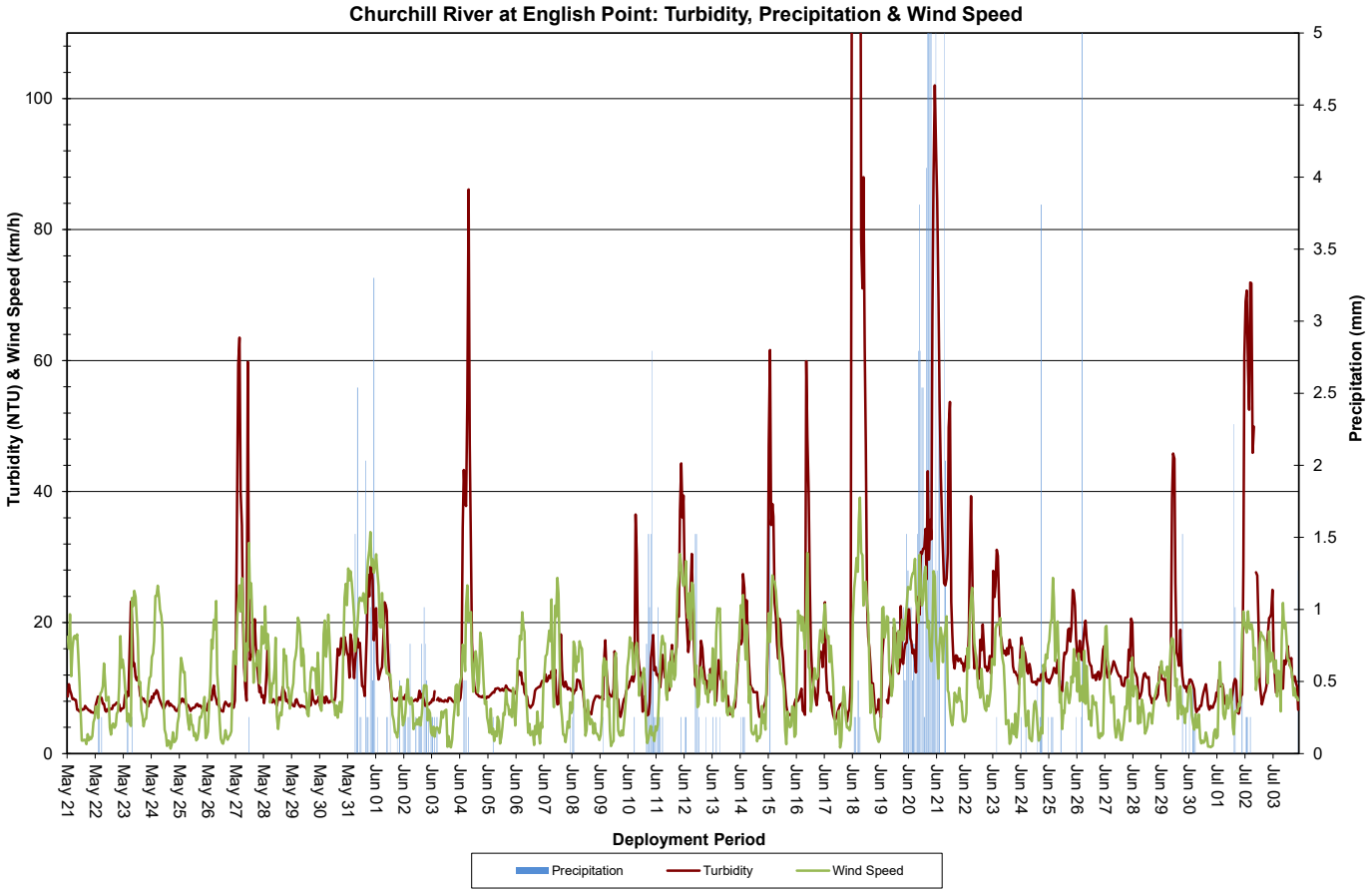

Figure 12: Turbidity, Precipitation & Wind Speed at Churchill River at English Point

Stage

- Over the deployment period, stage ranged from 0.0004m to 0.554m, with a median value of 0.135m (Figure 13). Precipitation data was obtained from the Muskrat Falls Weather Station.
- Stage fluctuates considerably at this location due to the tidal influences of the Atlantic Ocean. This pattern is consistent over the deployment period. Increases in stage often correlate with precipitation events.
- Water Survey of Canada (Environment and Climate Change Canada) is responsible for QA/QC of water quantity data. Corrected data can be obtained upon request.

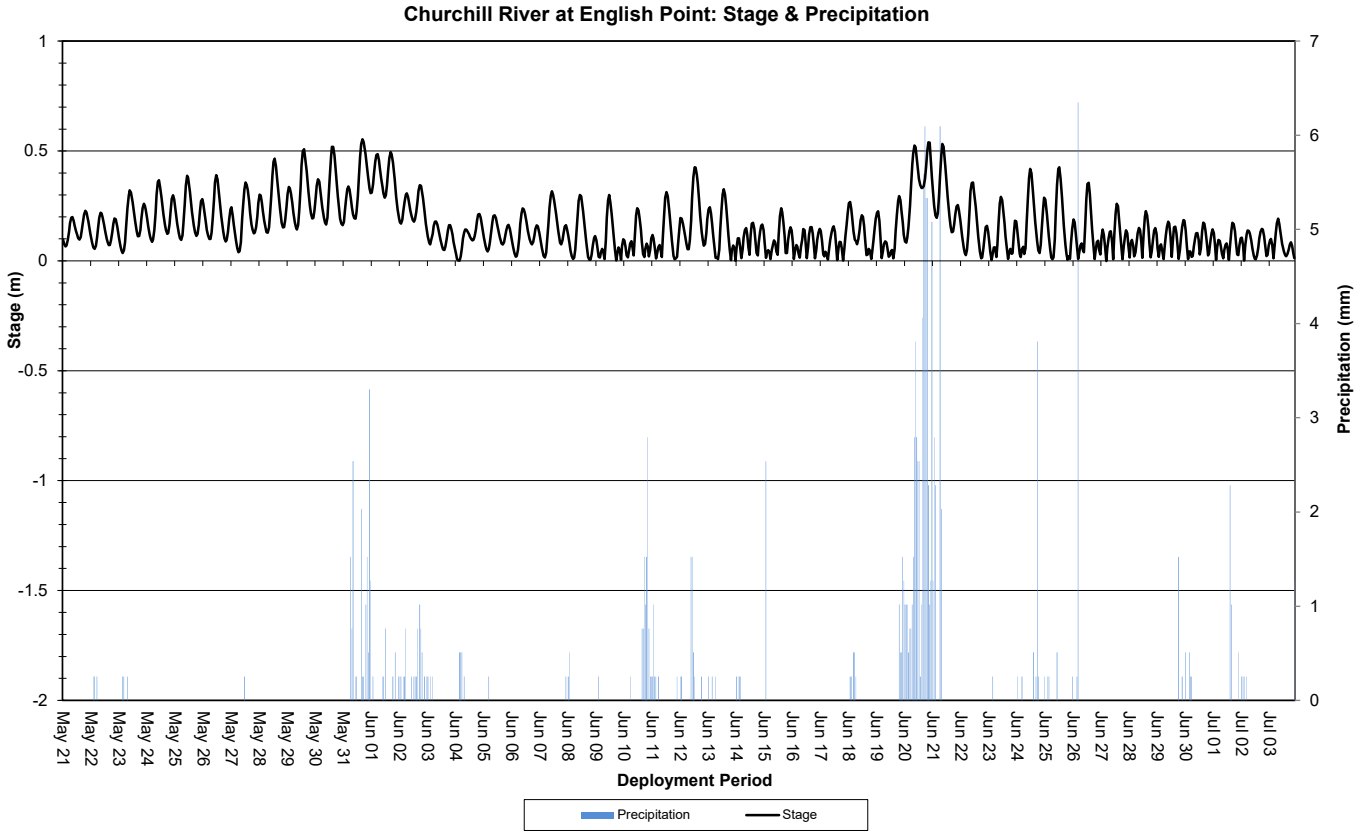

Figure 13: Stage & Precipitation at Churchill River at English Point

Conclusions

- Instruments at two water quality monitoring stations on the Lower Churchill River were deployed from May 21 through July 4, 2025. The instrument below Muskrat Falls was temporarily out of the water on several occasions during deployment, based on analysis of the data. This is due to water levels decreasing after the instrument was deployed in May.
- Water temperature increased steadily at both stations over the course of deployment. This is to be expected based on ambient air temperature trends during the same period from May to July.
- pH was relatively stable at Churchill River below Muskrat Falls and Churchill River at English Point, hovering around the CCME's Guidelines for the Protection of Aquatic Life for the majority of the deployment period. Periods of abnormally high or low pH values occurred when the instrument was out of the water due to water level decreases.
- Specific conductivity generally increased over the course of deployment at below Muskrat Falls and decreased over deployment at English Point. Since English Point is influenced by tides in Lake Melville, specific conductivity values at the Churchill River at English Point station had a much wider range, which is comparable to other deployments at this location.
- Dissolved oxygen levels slowly decreased over the course of deployment at both stations as water temperatures increased into early summer. Dissolved oxygen levels are generally higher in water at cooler temperatures. Dissolved oxygen levels were above the CCME's Guideline for the Protection of Early Life Stages at the beginning of the deployment period, falling below the Guideline towards the end of deployment. Dissolved oxygen levels were above the CCME's Guideline for the Protection of Other Life Stages for the duration of deployment at both stations.
- Turbidity events occurred at both stations and were generally related to precipitation, wind or tidal events. Turbidity values returned to background levels following each observed event.

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APPENDIX A

Water Parameter Description

Water Parameter Description

Dissolved Oxygen - The amount of Dissolved Oxygen (DO) (mg/l or % saturation) in the water is vital to aquatic organisms for their survival. The concentration of DO is affected by such things as water temperature, water depth and flow (e.g., aeration by rapids, riffles etc.), consumption by aerobic organisms, consumption by inorganic chemical reactions, consumption by plants during darkness, and production by plants during the daylight (USGS, 2017).

Flow - Flow (m3/s) is a measure of how quickly a volume of water is displaced in streams, rivers, and other channels.

pH - pH is a measure of the relative amount of free hydrogen and hydroxyl ions in water. pH is an important indicator of chemically changing water, and determines the solubility and biological availability of nutrients and heavy metals in the water (USGS, 2017).

Specific conductivity - Specific conductivity (µs/cm) is a measure of water's ability to conduct electricity, with values normalized to a water temperature of 25°C. Specific conductance indicates the concentration of dissolved solids (such as salts) in the water, which can affect the growth and reproduction of aquatic life. Specific conductivity is affected by rainfall events, the composition of inflowing tributaries and their associated geology, saline inflow (e.g., road salt), agricultural run-off and industrial inputs (Fondriest Environmental Inc, 2016).

Stage - Stage (m) is the elevation of the water surface and is often used as a surrogate for the more difficult to measure flow.

Temperature - Essential to the measurement of most water quality parameters, temperature (°C) controls most aquatic processes. Water temperature is influenced by such things as ambient air temperature, solar radiation, meteorological events, industrial effluence, wastewater, inflowing tributaries, as well as water body size and depth. In turn, water temperature has an influence on the metabolic rates and biological activity of aquatic organisms (Fondriest Environmental Inc, 2016b).

Total Dissolved Solids - Total Dissolved Solids (TDS) (g/l) is a measure of alkaline salts dissolved in water or in fine suspension and can affect the growth and reproduction of aquatic life. It is affected by rainfall events, the composition of inflowing tributaries and their associated geology, saline inflow (e.g., road salt), agricultural run-off and industrial inputs (Swenson and Baldwin, 1965).

Turbidity - Turbidity (NTU) is a measure of the translucence of water and indicates the amount of suspended material in the water. Turbidity is caused by any substance that makes water cloudy (e.g., soil erosion, micro-organisms, vegetation, chemicals, etc.) and can correspond to precipitation events, high stage, and floating debris near the sensor (Swenson and Baldwin 1965).

APPENDIX B

Grab Sample Results

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ARER81 CR BELOW MF Sampling Date 2025/05/21 11:00 Matrix DR Sample # 2025-6300-00-SI-SP Registration # SA-0000								
RESULTS OF ANALYSES OF DRINKING WATER								
Calculated Parameters								
Hardness (CaCO3)	-	9.0	1.0	mg/L	N/A	2025/05/29		9935411
Total Kjeldahl Nitrogen (TKN)	-	ND	0.10	mg/L	N/A	2025/05/30		9935203
Nitrate (N)	-	0.089	0.050	mg/L	N/A	2025/05/30		9935415
Total dissolved solids (calc., EC)	-	10	1.0	mg/L	N/A	2025/05/29		9935201
Inorganics								
Conductivity	-	19	1.0	uS/cm	N/A	2025/05/28	M2C	9936832
Chloride (Cl-)	-	ND	1.0	mg/L	N/A	2025/05/30	VP2	9937458
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2025/05/30	VP2	9937458
Sulphate (SO4)	-	ND	1.0	mg/L	N/A	2025/05/30	VP2	9937458
Total Alkalinity (Total as CaCO3)	-	7.2	2.0	mg/L	N/A	2025/05/28	M2C	9936834
Colour	-	33	5.0	TCU	N/A	2025/05/29	MCN	9937627
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2025/05/28	M2C	9936836
Nitrate + Nitrite (N)	-	0.089	0.050	mg/L	N/A	2025/05/29	MCN	9937626
Nitrite (N)	-	ND	0.010	mg/L	N/A	2025/05/29	MCN	9937557
Nitrogen (Ammonia Nitrogen)	-	ND	0.050	mg/L	N/A	2025/05/27	MCN	9935878
Total Nitrogen (N)	-	0.15	0.10	mg/L	N/A	2025/05/28	SSI	9936721
Dissolved Organic Carbon (C)	-	4.8	0.50	mg/L	N/A	2025/05/28	SSI	9936869
Total Organic Carbon (C)	-	4.8	0.50	mg/L	N/A	2025/05/27	SSI	9936148
pH	-	6.92		pH	N/A	2025/05/28	M2C	9936829
Total Phosphorus	-	ND	0.004	mg/L	2025/05/28	2025/05/30	VKH	9937409
Total Suspended Solids	-	3.6	1.0	mg/L	2025/05/27	2025/05/28	RD4	9935893
Turbidity	-	3.9	0.10	NTU	N/A	2025/05/30	M2C	9938844
Dup.Turbidity	-	4.1	0.10	NTU	N/A	2025/05/30	M2C	9938844
MERCURY BY COLD VAPOUR AA (DRINKING WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2025/05/29	2025/05/29	JEP	9937080
ELEMENTS BY ICP/MS (DRINKING WATER)								
Metals								
Total Aluminum (Al)	-	0.18	0.0050	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Antimony (Sb)	-	ND	0.0010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Arsenic (As)	-	ND	0.0010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Barium (Ba)	-	0.0086	0.0010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Boron (B)	-	ND	0.050	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Calcium (Ca)	-	2.3	0.10	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Chromium (Cr)	-	ND	0.0010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Copper (Cu)	-	0.00065	0.00050	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Iron (Fe)	-	0.25	0.050	mg/L	2025/05/28	2025/05/28	MOA	9936718

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NL Department of Environment, Climate Change and Municipalities
Site Location: LABRADOR
Your P.O. #: 224006869-5

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ARER81 CR BELOW MF Sampling Date 2025/05/21 11:00 Matrix DR Sample # 2025-6300-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (DRINKING WATER)								
Metals								
Total Lead (Pb)	-	ND	0.00050	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Magnesium (Mg)	-	0.78	0.10	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Manganese (Mn)	-	0.011	0.0020	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Nickel (Ni)	-	ND	0.0020	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Phosphorus (P)	-	ND	0.10	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Potassium (K)	-	0.32	0.10	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Selenium (Se)	-	ND	0.00050	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Sodium (Na)	-	0.74	0.10	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Strontium (Sr)	-	0.013	0.0020	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Uranium (U)	-	ND	0.00010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Zinc (Zn)	-	ND	0.0050	mg/L	2025/05/28	2025/05/28	MOA	9936718

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Bureau Veritas Job #: C559882
Report Date: 2025/06/02

NL Department of Environment, Climate Change and Municipalities
Site Location: LABRADOR
Your P.O. #: 224006869-5

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ARER82 CR @ EP Sampling Date 2025/05/21 12:10 Matrix DR Sample # 2025-6301-00-SI-SP Registration # SA-0000								
RESULTS OF ANALYSES OF DRINKING WATER								
Calculated Parameters								
Hardness (CaCO3)	-	9.3	1.0	mg/L	N/A	2025/05/29		9935411
Total Kjeldahl Nitrogen (TKN)	-	0.11	0.10	mg/L	N/A	2025/05/30		9935203
Nitrate (N)	-	ND	0.050	mg/L	N/A	2025/05/30		9935415
Total dissolved solids (calc., EC)	-	12	1.0	mg/L	N/A	2025/05/29		9935201
Inorganics								
Conductivity	-	21	1.0	uS/cm	N/A	2025/05/28	M2C	9936832
Chloride (Cl-)	-	1.1	1.0	mg/L	N/A	2025/05/30	VP2	9937458
Bromide (Br-)	-	ND	1.0	mg/L	N/A	2025/05/30	VP2	9937458
Sulphate (SO4)	-	ND	1.0	mg/L	N/A	2025/05/30	VP2	9937458
Total Alkalinity (Total as CaCO3)	-	6.5	2.0	mg/L	N/A	2025/05/28	M2C	9936834
Colour	-	64	25	TCU	N/A	2025/05/29	MCN	9937627
Dissolved Fluoride (F-)	-	ND	0.10	mg/L	N/A	2025/05/28	M2C	9936836
Nitrate + Nitrite (N)	-	ND	0.050	mg/L	N/A	2025/05/29	MCN	9937626
Nitrite (N)	-	ND	0.010	mg/L	N/A	2025/05/30	MCN	9937557
Nitrogen (Ammonia Nitrogen)	-	0.050	0.050	mg/L	N/A	2025/05/27	MCN	9935878
Dup.Nitrogen (Ammonia Nitrogen)	-	ND	0.050	mg/L	N/A	2025/05/27	MCN	9935878
Total Nitrogen (N)	-	0.11	0.10	mg/L	N/A	2025/05/28	SSI	9936721
Dissolved Organic Carbon (C)	-	5.9	0.50	mg/L	N/A	2025/05/28	SSI	9936869
Total Organic Carbon (C)	-	5.9	0.50	mg/L	N/A	2025/05/27	SSI	9936148
pH	-	6.84		pH	N/A	2025/05/28	M2C	9936829
Total Phosphorus	-	0.012	0.004	mg/L	2025/05/28	2025/05/30	VKH	9937409
Total Suspended Solids	-	10	1.0	mg/L	2025/05/27	2025/05/28	RD4	9935893
Turbidity	-	14	0.10	NTU	N/A	2025/05/30	M2C	9938229
MERCURY BY COLD VAPOUR AA (DRINKING WATER)								
Metals								
Total Mercury (Hg)	-	ND	0.000013	mg/L	2025/05/29	2025/05/29	JEP	9937080
ELEMENTS BY ICP/MS (DRINKING WATER)								
Metals								
Total Aluminum (Al)	-	0.48	0.0050	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Antimony (Sb)	-	ND	0.0010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Arsenic (As)	-	ND	0.0010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Barium (Ba)	-	0.012	0.0010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Boron (B)	-	ND	0.050	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Cadmium (Cd)	-	ND	0.000010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Calcium (Ca)	-	2.2	0.10	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Chromium (Cr)	-	ND	0.0010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Copper (Cu)	-	0.00097	0.00050	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Iron (Fe)	-	0.64	0.050	mg/L	2025/05/28	2025/05/28	MOA	9936718

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Bureau Veritas Job #: C559882
Report Date: 2025/06/02

NL Department of Environment, Climate Change and Municipalities
Site Location: LABRADOR
Your P.O. #: 224006869-5

Sample Details/Parameters	A	Result	RDL	UNITS	Extracted	Analyzed	By	Batch
ARER82 CR @ EP Sampling Date 2025/05/21 12:10 Matrix DR Sample # 2025-6301-00-SI-SP Registration # SA-0000								
ELEMENTS BY ICP/MS (DRINKING WATER)								
Metals								
Total Lead (Pb)	-	ND	0.00050	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Magnesium (Mg)	-	0.93	0.10	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Manganese (Mn)	-	0.020	0.0020	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Nickel (Ni)	-	ND	0.0020	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Phosphorus (P)	-	ND	0.10	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Potassium (K)	-	0.45	0.10	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Selenium (Se)	-	ND	0.00050	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Sodium (Na)	-	1.4	0.10	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Strontium (Sr)	-	0.014	0.0020	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Uranium (U)	-	ND	0.00010	mg/L	2025/05/28	2025/05/28	MOA	9936718
Total Zinc (Zn)	-	ND	0.0050	mg/L	2025/05/28	2025/05/28	MOA	9936718

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